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Effective pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2006

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($)	500.00

Complete if Known	
Application Number	09/924,322
Filing Date	August 8, 2001
First Named Inventor	Edouard Francois
Examiner Name	Allen Wong
Art Unit	2613
Attorney Docket No.	PF000079

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 07-0832 Deposit Account Name: Thomson Licensing, Inc.

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☑ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

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FEE CALCULATION (All the fees below are due upon filing or may be subject to a surcharge.)

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 20 or HP =	_____ x	_____ =	_____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 3 or HP =	_____ x	_____ =	_____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)
_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
_____ - 100 =	_____ / 50 =	_____ (round up to a whole number) x	_____ =	_____

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge): Appeal Brief	$500.00

SUBMITTED BY			
Signature		Registration No. (Attorney/Agent) 34,721	Telephone 212-971-0416
Name (Print/Type)	Jack Schwartz		Date July 18, 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Patent Appeals and Interferences

Applicant : Edouard Francois

Serial No. : 09/924,322

Filed : August 8, 2001

For : PROCESS FOR THE FORMAT CONVERSION OF AN IMAGE SEQUENCE

Examiner : Allen Wong

Art Unit : 2613

Customer No. : 24498

APPEAL BRIEF

May It Please The Honorable Board:

Appellants appeal the Final Rejection, dated March 15, 2006 of Claims 1-8 of the above-identified application. The fee of five hundred dollars ($500.00) for filing this Brief and any associated extension fee is to be charged to Deposit Account No. 07-0832. Enclosed is a single copy of this Brief.

Please charge any additional fee or credit any overpayment to the above-identified Deposit Account.

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Appellants do not request an oral hearing.

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Certificate of Mailing under 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in a postage paid envelope addressed to: Mail Stop: Appeal Briefs - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

Signature _____ Date: 7/18/06

I. REAL PARTY IN INTEREST

The real party in interest of Application Serial No. 09/924,322 is the Assignee of record:

THOMSON Licensing S.A.
46 quai Alphonse Le Gallo
F-92100 BOULOGNE BILLANCOURT
FRANCE

II. RELATED APPEALS AND INTERFERENCES

There are currently, and have been, no related Appeals or Interferences regarding Application Serial No. 09/924,328.

III. STATUS OF THE CLAIMS

Claims 1-8 are rejected and the rejection of claims 1-8 are appealed.

IV. STATUS OF AMENDMENTS

All amendments were entered and are reflected in the claims included in Appendix I.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 describes a process for the format conversion of an image sequence. The process employs video data coded on the basis of a structure of pixel groups. The process includes a first step for decoding the coded data (Figure 2, step 5; Page 6, lines 21-28) and a second step for converting the decoded data (Page 6, line 30 – Page 7, line 29). For a coded pixel group to be converted, if the decoding mode is of the "inter" type with no residue (Figure 2, step 6; Page 6, lines 33-38), the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector

associated with the coded pixel group (Figure 2, steps 7 and 8; Page 7, lines 6-8 and 15-19).

Dependant claim 2 includes the features of independent claim 1 along with the additional feature that if the motion vector associated with the pixel group is null, the conversion is performed by recopy of the co-located pixel group and, if the motion vector is different from zero, the conversion is performed by motion compensation in a preceding converted image (Page 7, lines 5-19).

Dependant claim 3 includes the features of independent claim 1 along with the additional feature that the data is coded according to the MPEG standard, the pixel group is an image block and the coding mode is determined from the cbp (coded block pattern) code defining the apportionment of the coded blocks in a macroblock (Page 7, line 26 – Page 8, line 2).

Dependant claim 4 includes the features of independent claim 1 along with the additional feature that the data is coded according to the MPEG standard, the pixel group is a macroblock and the coding mode is determined from the "skipped macroblock" or "uncoded" mode (Page 7, line 26 – Page 8, line 2).

Dependant claim 5 includes the features of independent claim 1 along with the additional feature that the format conversion is supplemented with a modification of the display employing a simple mathematical operation applicable at the decoded pixel group level, wherein the operation, adapted to the display domain, is applied to the copied converted pixel group (Page 11, lines 1-8).

Dependant claim 6 includes the features of independent claim 1 along with the additional feature that the simple operation is the addition of an offset (Page 11, lines 6-7).

Independent claim 7 describes a process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups. The process includes a first step for decoding the coded data (Figure 2, step 5; Page 6, lines 21-28) and a second step of converting of the decoded data (Page 6, line 30 – Page 7, line 29). If for the decoding of a pixel group to be converted an error of transmission of the coded data brings about an error masking mode equivalent to a decoding of the inter type with no residue, the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with the coded pixel group (Figure 2, steps 7 and 8; Page 7, lines 6-8 and 15- 19 and Page 12, line 36 – Page 13, line 3).

Independent claim 8 describes a process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups. The process includes a first step for decoding the coded data (Figure 2, step 5; Page 6, lines 21-28) and a second step for converting the decoded data (Page 6, line 30 – Page 7, line 29). The coded data comprising complementary data allowing scalability, that is to say the obtaining of images of different resolutions, wherein, in the case where the complementary data pertaining to a pixel group and to a given resolution have zero value, this pixel group for the converted image of given resolution is obtained from a group of converted pixels of the image of lower resolution (Page 12, lines 7- 22).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-3 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (U.S. Patent No. 6.259.741) in view of Lim (U.S. Patent No. 6,333,952).

Claim 4 is rejected under rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (U.S. Patent No. 6.259.741) in view of Lim (U.S. Patent No. 6,333,952) and further in view of Kato (U.S. Patent No. 5,701,164).

VII. ARGUMENT

Chen, when taken alone or in any combination with Lim, does not make the present claimed invention unpatentable. Thus, reversal of the Final Rejection (hereinafter termed "rejection") of claims 1-3 and 5-8 under section 35 U.S.C. § 103(a) is respectfully requested.

Chen, when taken alone or in any combination with Lim and Kato, does not make the present claimed invention unpatentable. Thus, reversal of the Final Rejection (hereinafter termed "rejection") of claim 4 under section 35 U.S.C. § 103(a) is respectfully requested.

Overview of the Cited References

Chen describes a system for converting the color format of a digital video bitstream. The system accounts for the allowable formats of the pre- and post-conversion bitstreams, including quantizer precision level, and whether luma and chroma data have separate quantization matrices, or share a common quantization matrix. In a particular implementation, an MPEG-2 4:2:2 P bitstream having a color format of 4:2:2 or 4:2:0 is converted to a MP bitstream having a color format of 4:2:0. Coding efficiencies are achieved by using the luma quantization matrix to re-quantize the chroma data, and re-using luma motion vectors for performing motion compensation of the chroma data. Further efficiencies can be achieved by representing a 4:2:2 reference picture in a 4:2:0 format for

converting inter coded frames, and changing the position of a pixel downsizing filter and clip function. Adjustment of the quantization precision is provided as required. A transcoding function can also be achieved (see Abstract).

Lim describes a decoder for a digital TV receiver. The decoder of Lim improves the picture quality of a video signal down converted when an SD class TV receiver receives an HD class video signal. Generally, the decoder receives data in block units, converts a format of the data into a format for display, memorizes the data, processes the memorized data, and displays the processed data by converting the format to include more horizontal color signals than vertical color signals, memorizing and reproducing the data in downsampling the data in block units in a given ratio, and storing the data (see Abstract).

Kato describes a difference vector determination element used in an apparatus for coding motion vectors including register memories of which number is equal to a sum of maximum transmission numbers N and M of forward predictive and backward predictive motion vectors. A motion vector counter counts the number of transmissions of motion vectors to output a motion vector count signal. Register index designation signal generator designates indices of (1-N (N+1)~(N+M)) in order of transmission of forward predictive or backward predictive motion vectors on the basis of attached information such as motion compensation mode, prediction type, and picture structure, of motion vector, and the motion vector count signal from the motion vector counter to allow a switch to perform a switching operation, thus allowing register memories and motion vectors to have a one-to-one correspondence relationship. A difference circuit determines a difference between a motion vector inputted thereto and a value taken out from the register memory caused to correspond to the motion vector on the basis of motion compensation mode, etc (see Abstract).

Rejection of Claims 1-3 and 5-8 under 35 USC 103(a)

over Chen (U.S. Patent No. 6,259,741) in view of Lim

(U.S. Patent No. 6,,333,952)

Reversal of the rejection of claims 1-3 and 5-8 under 35 U.S.C. 103(a) as being unpatentable over of U.S. Patent 6,259,741 issued to Chen in view of U.S. Patent 6,333,952 issued to Lim is respectfully requested because the rejection makes crucial errors in interpreting the cited reference. The rejection erroneously states that claims 1-3 and 5-8 are made unpatentable by Chen in view of Lim.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596, 1598 (Fed.Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (CCPA 1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion, or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed.Cir. 1988), *cert. denied*, 488 U.S. 825 (1988); *Ashland Oil Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 28, 293, 227 USPQ 657, 664 (Fed.Cir. 1985), *cert. denied,* 475 U.S. 1017 (1986); *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed.Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed.Cir. 1992).

Claims 1-3 and 5-8 are rejected under 35 USC 103(a) as being unpatentable over Chen et al. (U.S. Patent No. 6,259,741) in view of Lim et al. (U.S. Patent No. 6,333,952).

CLAIMS 1-3 and 5-6

Independent claim 1 provides a process for the format conversion of an image sequence. The process employs video data coded on the basis of a structure of pixel groups. The process includes a first step for decoding the coded data and a second step for converting the decoded data. For a coded pixel group to be converted, if the decoding mode is of the "inter" type with no residue, the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with the coded pixel group.

Specifically, the process of the present claimed invention provides "a second step of converting of the decoded data, wherein, for a coded pixel group to be converted, if the decoding mode is of the "inter" type with no residue, the conversion is performed by a **copy of a converted pixel group of a preceding image** linked by the motion vector associated with said coded pixel group" in claim 1. In contrast, Chen neither discloses nor suggests these features. Chen recites that when inter mode data is detected "switch 327 is activated to pass reference image data from the chroma MC(2) function 325 to the adder 345" (Col. 11, lines 12-14). Subsequently, "either a null signal or reference image data from the chroma MC(2) function is subtracted" (Col. 11, line 65 – Col. 12, line 1) from the filtered current image data. Essentially, the output of 345 is a residue which undergoes a DCT transformation 350. Consequently, the "converted pixel group" is subtracted from the converted pixel group at the output of the filter 340 to give a residue. Thus, Chen is fundamentally different from the present claimed invention, as the present claimed invention copies a converted pixel group and Chen merely subtracts a residue from a pixel

group. Unlike the present claimed invention which copies a converted pixel group of a preceding image when detecting the pixel group is of inter type with no residue, Chen subtracts a residue from the received pixel block when detecting the pixel group is of inter type.

Additionally, the process of the present claimed invention provides "a second step of converting of the decoded data" in claim 1. In contrast, Chen neither discloses nor suggests this feature. Chen describes switch 327 and subtractor 345, whose function is to perform inter coding and to calculate a residue (see col. 11, lines 10-14 and see also MPEG standard). Thus, Chen is fundamentally different than the present claimed invention, as the present claimed invention converts the decoded data and Chen describes inter-coding and calculating residue. Unlike the presents claimed invention which describes a copy of a group of pixels to convert decoded data, Chen describes activating Switch 327 for inter-coding through the subtractor 345.

Furthermore, as described above, Chen describes a filter to perform conversion and a subtractor to perform coding, thus failing to disclose **copying** a previously converted group of pixels. However, even if one were to suppose, in place of the view discussed above, that adder 345 actually performs a copy of a pixel-block, Chen would still not disclose the principles of the present claimed invention.

Specifically, the present claimed invention provides "a second step of converting of the **decoded data**" in claim 1. In contrast, Chen neither discloses nor suggests this feature. Under the second view noted above, Chen describes that un-decoded reference image data from the chroma MC(2) function is passed to the adder 345 which performs a copy of a pixel block. The output of this "copy" by adder 345 is a residue used for coding. The

residue is a temporary signal, requiring supplementary data (reconstructed block) to represent an input signal (inter-coding mode). Thus, under this alternate view of the system of Chen, Chen would once again be fundamentally different than the present claimed invention, as the present claimed invention discloses a copy **of a converted block of pixels** and Chen would describe a copy **of a non-converted block of pixels**. Additionally, as inter mode is typically without residue, the output signal of adder 345 described by Chen would typically be of a value of zero. Thus, the system of the present claimed invention would produce a converted signal corresponding to the input signal while the system of Chen would typically produce a residue output of zero. Therefore, Chen fails to disclose **copying** a group of pixels under the first view of the function of adder 345 and fail to disclose copying a group of **decoded pixels** under the second view of the function of adder 345.

Even further, Lim et al. discloses a first process for the conversion of B-type frames and a second process for the conversion of I and P type frames. In contrast, the present claimed invention discloses different processes for the conversion of the frames using inter coding (P and B-type frames) and for the conversion of I-type frames. Thus, Lim et al. are fundamentally different than the present claimed invention, as the present claimed invention discloses a separate conversion process for I-type frames and Lim et al. disclose a single conversion process for both I and P-type frames. Furthermore, Lim et al., similarly to Chen, is fundamentally different than the present claimed invention, as the present claimed invention performs a conversion by a copy of a converted pixel group of a preceding image when the decoding mode is of inter type and Lim et al. merely disclose the conversion of I and P-type frames.

In addition, it would not be obvious to combine the systems of Lim et al. and Chen. Lim et al. and Chen disclose separate decoding and conversion means. Chen discloses

MPEG circuits for decoding data (IDCT 315, adder 330...) and a filter for converting data. Lim et al. disclose a circuit 61 for decoding data and circuit 84/93 for converting data. There is no hint for combining the means of these two systems to implement the specific conversion process claimed in our invention.

Even if one were to try to combine the systems of Chen and Lim et al. the combined system would be confusing and would ultimately be discarded by one skilled in the art. Specifically, in combining the two systems one skilled in the art would combine the circuits displayed in Figure 9 of Lim et al. with circuits (adder 345 for conversion, reconstruction means 360, 365, 350 and 355 and filter 340) displayed in Figure 3 of Chen. Thus, the combined system would consist of a decoder (adder 345 of Chen), a converter (filter 340 of Chen) and a specific converter for the inter mode without residue (Lim). The specific converter is in fact a coder whose output is a compressed signal. Thus, one skilled in the art may opt to place a decoder after the specific decoder to obtain a decoded output. Thus, the final layout of the combined system would consist of a decoder followed by a converter/coder followed by another decoder. However, this layout would be ultimately discarded by one skilled in the art as it is inefficient and confusing.

Additionally, the reason for combining the systems of Chen and Lim et al. is to provide an improved visual quality at the decoding terminal. This is wholly unlike the advantage with which the present invention is concerned, as the present invention is concerned with optimizing the calculation time (page 5, lines 29-30).

Furthermore, even if one were to successfully combine the systems of Chen and Lim et al., the combined system, similarly to the individual systems of Chen and Lim et al., would not disclose the features of the present claimed invention. Specifically, the present

claimed invention discloses "for a coded pixel group to be converted, if the decoding mode is of the "inter" type with no residue, the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group". Chen is concerned with inter coding (see structure of an MPEG coder). Chen is not concerned with anything beyond the MPEG coding defined by coding circuits 345 to 370. Thus, there is no functional link between the coding circuits and the conversion circuit (the filter). Combining other systems that have a separate decoding step and conversion step would not suggest a combination of the two steps. Therefore, the combination of the systems of Chen and Lim et al. would not suggest the use of a specific decoding mode for performing the conversion, as claimed in the present claimed invention. Consequently, it is respectfully requested that the rejection of claim 1 under 35 USC 103(a) be withdrawn.

Dependant claims 2, 3, 5 and 6 are considered to be patentable based on their dependence on independent claim 1. Therefore, the arguments presented above with respect to claim 1 also applies to claims 2, 3, 5 and 6. Consequently, it is respectfully requested that the rejection of claims 2, 3, 5 and 6 under 35 USC 103(a) be withdrawn.

CLAIM 7

Independent claim 7 describes a process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups. The process includes a first step for decoding the coded data and a second step of converting of the decoded data. If for the decoding of a pixel group to be converted an error of transmission of the coded data brings about an error masking mode equivalent to a decoding of the inter type with no residue, the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with the coded pixel group.

Specifically, the process of the present claimed invention provides that "if for the decoding of a pixel group to be converted an error of transmission of the coded data brings about an error masking mode equivalent to a decoding of the inter type with no residue, the conversion is performed by a **copy of a converted pixel group** of a preceding image linked by the motion vector associated with said coded pixel group" in claim 7. In contrast, Chen neither discloses nor suggests these features. Chen recites that when inter mode data is detected "switch 327 is activated to pass reference image data from the chroma MC(2) function 325 to the adder 345" (Col. 11, lines 12-14). Subsequently, "either a null signal or reference image data from the chroma MC(2) function is subtracted" (Col. 11, line 65 – Col. 12, line 1) from the filtered current image data. Essentially, the output of 345 is a residue which undergoes a DCT transformation 350. Consequently, the "converted pixel group" is subtracted from the converted pixel group at the output of the filter 340 to give a residue. Thus, Chen is fundamentally different from the present claimed invention, as the present claimed invention copies a converted pixel group and Chen merely subtracts a residue from a pixel group. Unlike the present claimed invention which copies a converted pixel group of a preceding image when detecting the pixel group is of inter type with no residue, Chen subtracts a residue from the received pixel block when detecting the pixel group is of inter type.

Additionally, the process of the present claimed invention provides "a second step of **converting** of the decoded data" in claim 7. In contrast, Chen neither discloses nor suggests this feature. Chen describes switch 327 and subtractor 345, whose function is to perform inter coding and to calculate a residue (see col. 11, lines 10-14 and see also MPEG standard). Thus, Chen is fundamentally different than the present claimed invention, as the present claimed invention converts the decoded data and Chen describes inter-coding and

calculating residue. Unlike the presents claimed invention which describes a copy of a group of pixels to convert decoded data, Chen describes activating Switch 327 for inter-coding through the subtractor 345.

Furthermore, as described above, Chen describes a filter to perform conversion and a subtractor to perform coding, thus failing to disclose **copying** a previously converted group of pixels. However, even if one were to suppose, in place of the view discussed above, that adder 345 actually performs a copy of a pixel-block, Chen would still not disclose the principles of the present claimed invention.

Specifically, the present claimed invention provides "a second step of converting of **the decoded data**" in claim 7. In contrast, Chen neither discloses nor suggests this feature. Under the second view noted above, Chen describes that un-decoded reference image data from the chroma MC(2) function is passed to the adder 345 which performs a copy of a pixel block. The output of this "copy" by adder 345 is a residue used for coding. The residue is a temporary signal, requiring supplementary data (reconstructed block) to represent an input signal (inter-coding mode). Thus, under this alternate view of the system of Chen, Chen would once again be fundamentally different than the present claimed invention, as the present claimed invention discloses a copy **of a converted block of pixels** and Chen would describe a copy **of a non-converted block of pixels**. Additionally, as inter mode is typically without residue the output signal of adder 345 described by Chen would typically be of a value of zero. Thus, the system of the present claimed invention would produce a converted signal corresponding to the input signal while the system of Chen would typically produce a residue output of zero. Therefore, Chen fails to disclose **copying** a group of pixels under the first view of the function of adder 345 and fail to disclose copying a group of **decoded pixels** under the second view of the function of adder 345.

Even further, Lim et al. discloses a first process for the conversion of B-type frames and a second process for the conversion of I and P type frames. In contrast, the present claimed invention discloses different processes for the conversion of the frames using inter coding (P and B-type frames) and for the conversion of I-type frames. Thus, Lim et al. are fundamentally different than the present claimed invention, as the present claimed invention discloses a separate conversion process for I-type frames and Lim et al. disclose a single conversion process for both I and P-type frames. Furthermore, Lim et al. similarly to Chen, is fundamentally different than the present claimed invention, as the present claimed invention performs a conversion by a copy of a converted pixel group of a preceding image when the decoding mode is of inter type and Lim et al. merely disclose the conversion of I and P-type frames.

In addition, it would not be obvious to combine the systems of Lim et al. and Chen. Lim et al. and Chen disclose separate decoding and conversion means. Chen discloses MPEG circuits for decoding data (IDCT 315, adder 330...) and a filter for converting data. Lim et al. disclose a circuit 61 for decoding data and circuit 84/93 for converting data. There is no hint for combining the means of these two systems to implement the specific conversion process claimed in our invention.

Even if one were to try to combine the systems of Chen and Lim et al. the combined system would be confusing and would ultimately be discarded by one skilled in the art. Specifically, in combining the two systems one skilled in the art would combine the circuits displayed in Figure 9 of Lim et al. with circuits (adder 345 for conversion, reconstruction means 360, 365, 350 and 355 and filter 340) displayed in Figure 3 of Chen. Thus, the combined system would consist of a decoder (adder 345 of Chen), a converter (filter 340 of

Chen) and a specific converter for the inter mode without residue (Lim). The specific converter is in fact a coder whose output is a compressed signal. Thus, one skilled in the art may opt to place a decoder after the specific decoder to obtain a decoded output. Thus, the final layout of the combined system would consist of a decoder followed by a converter/coder followed by another decoder. However, this layout would be ultimately discarded by one skilled in the art as it is inefficient and confusing.

Additionally, the reason for combining the systems of Chen and Lim et al. is to provide an improved visual quality at the decoding terminal. This is wholly unlike the advantage with which the present invention is concerned, as the present invention is concerned with optimizing the calculation time (page 5, lines 29-30).

Furthermore, even if one were to successfully combine the systems of Chen and Lim et al., the combined system, similarly to the individual systems of Chen and Lim et al., would not disclose the features of the present claimed invention. Specifically, the present claimed invention discloses that for "decoding of the inter type with no residue, the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group". Chen is concerned with inter coding (see structure of an MPEG coder). Chen is not concerned with anything beyond the MPEG coding defined by coding circuits 345 to 370. Thus, there is no functional link between the coding circuits and the conversion circuit (the filter). Combining other systems that have a separate decoding step and conversion step would not suggest a combination of the two steps. Therefore, the combination of the systems of Chen and Lim et al. would not suggest the use of a specific decoding mode for performing the conversion, as claimed in the present claimed invention. Consequently, it is respectfully requested that the rejection of claim 7 under 35 USC 103(a) be withdrawn.

CLAIM 8

Independent claim 8 describes a process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups. The process includes a first step for decoding the coded data (Figure 2, step 5; Page 6, lines 21-28) and a second step for converting the decoded data (Page 6, line 30 – Page 7, line 29). The coded data comprising complementary data allowing scalability, that is to say the obtaining of images of different resolutions, wherein, in the case where the complementary data pertaining to a pixel group and to a given resolution have zero value, this pixel group for the converted image of given resolution is obtained from a group of converted pixels of the image of lower resolution (Page 12, lines 7- 22).

Specifically, the process of the present claimed invention provides that "in the case where the complementary data pertaining to a pixel group and to a given resolution have zero value, this pixel group for the converted image of given resolution **is obtained from a group of converted pixels of the image of lower resolution**" in claim 8. In contrast, Chen neither discloses nor suggests these features. Chen recites that when inter mode data is detected "switch 327 is activated to pass reference image data from the chroma MC(2) function 325 to the adder 345" (Col. 11, lines 12-14). Subsequently, "either a null signal or reference image data from the chroma MC(2) function is subtracted" (Col. 11, line 65 – Col. 12, line 1) from the filtered current image data. Essentially, the output of 345 is a residue which undergoes a DCT transformation 350. Consequently, the "converted pixel group" is subtracted from the converted pixel group at the output of the filter 340 to give a residue. Thus, Chen is fundamentally different from the present claimed invention, as the present claimed invention obtains pixel data from a group of converted pixels of the image

of lower resolution and Chen merely subtracts a residue from a pixel group. Unlike the present claimed invention which obtains pixel data from a group of converted pixels of the image of lower resolution when complementary data pertaining to a pixel group and to a given resolution have zero value, Chen subtracts a residue from the received pixel block when detecting the pixel group is of inter type.

Additionally, the process of the present claimed invention provides "a second step of **converting** of the decoded data" in claim 8. In contrast, Chen neither discloses nor suggests this feature. Chen describes switch 327 and subtractor 345, whose function is to perform inter coding and to calculate a residue (see col. 11, lines 10-14 and see also MPEG standard). Thus, Chen is fundamentally different than the present claimed invention, as the present claimed invention converts the decoded data and Chen describes inter-coding and calculating residue. Unlike the presents claimed invention which describes the conversion of decoded data, Chen describes activating Switch 327 for inter-coding through the subtractor 345.

Furthermore, as described above, Chen describes a filter to perform conversion and a subtractor to perform coding, thus failing to disclose obtaining a previously converted group of pixels. However, even if one were to suppose, in place of the view discussed above, that adder 345 actually obtains a previous converted group of pixels of lower resolution, Chen would still not disclose the principles of the present claimed invention.

Specifically, the present claimed invention provides "a second step of converting of **the decoded data**" in claim 8. In contrast, Chen neither discloses nor suggests this feature. Under the second view noted above, Chen describes that un-decoded reference image data from the chroma MC(2) function is passed to the adder 345 which performs a copy of a

pixel block. The output of adder 345 is a residue used for coding. The residue is a temporary signal, requiring supplementary data (reconstructed block) to represent an input signal (inter-coding mode). Thus, under this alternate view of the system of Chen, Chen would once again be fundamentally different than the present claimed invention, as the present claimed invention discloses a conversion of **decoded data** and Chen would describe a conversion of **non-decoded data**. Additionally, as inter mode is typically without residue the output signal of adder 345 described by Chen would typically be of a value of zero. Thus, the system of the present claimed invention would produce a converted signal corresponding to the input signal while the system of Chen would typically produce a residue output of zero. Therefore, Chen fails to disclose obtaining a group of previously converted pixels of lower resolution under the first view of the function of adder 345 and fail to disclose converting a group of **decoded pixels** under the second view of the function of adder 345.

Even further, Lim et al. discloses a first process for the conversion of B-type frames and a second process for the conversion of I and P type frames. In contrast, the present claimed invention discloses different processes for the conversion of the frames using inter coding (P and B-type frames) and for the conversion of I-type frames. Thus, Lim et al. are fundamentally different than the present claimed invention, as the present claimed invention discloses a separate conversion process for I-type frames and Lim et al. disclose a single conversion process for both I and P-type frames. Furthermore, Lim et al. similarly to Chen, is fundamentally different than the present claimed invention, as the present claimed invention performs a conversion by a copy of a converted pixel group of a preceding image when the decoding mode is of inter type and Lim et al. merely disclose the conversion of I and P-type frames.

In addition, it would not be obvious to combine the systems of Lim et al. and Chen. Lim et al. and Chen disclose separate decoding and conversion means. Chen discloses MPEG circuits for decoding data (IDCT 315, adder 330...) and a filter for converting data. Lim et al. disclose a circuit 61 for decoding data and circuit 84/93 for converting data. There is no hint for combining the means of these two systems to implement the specific conversion process claimed in our invention.

Even if one were to try to combine the systems of Chen and Lim et al. the combined system would be confusing and would ultimately be discarded by one skilled in the art. Specifically, in combining the two systems one skilled in the art would combine the circuits displayed in Figure 9 of Lim et al. with circuits (adder 345 for conversion, reconstruction means 360, 365, 350 and 355 and filter 340) displayed in Figure 3 of Chen. Thus, the combined system would consist of a decoder (adder 345 of Chen), a converter (filter 340 of Chen) and a specific converter for the inter mode without residue (Lim). The specific converter is in fact a coder whose output is a compressed signal. Thus, one skilled in the art may opt to place a decoder after the specific decoder to obtain a decoded output. Thus, the final layout of the combined system would consist of a decoder followed by a converter/coder followed by another decoder. However, this layout would be ultimately discarded by one skilled in the art as it is inefficient and confusing.

Additionally, the reason for combining the systems of Chen and Lim et al. is to provide an improved visual quality at the decoding terminal. This is wholly unlike the advantage with which the present invention is concerned, as the present invention is concerned with optimizing the calculation time (page 5, lines 29-30).

Furthermore, even if one were to successfully combine the systems of Chen and Lim et al., the combined system, similarly to the individual systems of Chen and Lim et al., would not disclose the features of the present claimed invention. Specifically, the present claimed invention discloses that "in the case where the complementary data pertaining to a pixel group and to a given resolution have zero value, this pixel group for the converted image of given resolution is obtained from a group of converted pixels of the image of lower resolution". Chen is concerned with inter coding (see structure of an MPEG coder). Chen is not concerned with anything beyond the MPEG coding defined by coding circuits 345 to 370. Thus, there is no functional link between the coding circuits and the conversion circuit (the filter). Combining other systems that have a separate decoding step and conversion step would not suggest a combination of the two steps. Therefore, the combination of the systems of Chen and Lim et al. would not suggest the use of a specific decoding mode for performing the conversion, as claimed in the present claimed invention. Consequently, it is respectfully requested that the rejection of claim 8 under 35 USC 103(a) be withdrawn.

Rejection of Claim 4 under 35 USC 103(a)

over Chen (U.S. Patent No. 6,259,741) in view of Lim

(U.S. Patent No. 6,,333,952) and further in view of

Kato (U.S. Patent No. 5,701,164)

Reversal of the rejection of claim 4 under 35 U.S.C. 103(a) as being unpatentable over of U.S. Patent 6,259,741 issued to Chen in view of U.S. Patent 6,333,952 issued to Lim and U.S. Patent 5,701,164 issued to Kato is respectfully requested because the rejection makes crucial errors in interpreting the cited reference. The rejection erroneously

states that claim 4 is made unpatentable by Chen in view of Lim and further in view of Kato.

CLAIM 4

Dependant claim 4 includes the features of independent claim 1 and therefore is considered patentable for the reasons presented above with respect to claim 1. Claim 4 is also considered patentable due to the additional feature that the data is coded according to the MPEG standard, the pixel group is a macroblock and the coding mode is determined from the "skipped macroblock" or "uncoded" mode.

Specifically, the process of the present claimed invention provides "a second step of converting of the decoded data, wherein, for a coded pixel group to be converted, if the decoding mode is of the "inter" type with no residue, the conversion is performed by a **copy of a converted pixel group of a preceding image** linked by the motion vector associated with said coded pixel group" in claim 1. In contrast, Chen neither discloses nor suggests these features. Chen recites that when inter mode data is detected "switch 327 is activated to pass reference image data from the chroma MC(2) function 325 to the adder 345" (Col. 11, lines 12-14). Subsequently, "either a null signal or reference image data from the chroma MC(2) function is subtracted" (Col. 11, line 65 – Col. 12, line 1) from the filtered current image data. Essentially, the output of 345 is a residue which undergoes a DCT transformation 350. Consequently, the "converted pixel group" is subtracted from the converted pixel group at the output of the filter 340 to give a residue. Thus, Chen is fundamentally different from the present claimed invention, as the present claimed invention copies a converted pixel group and Chen merely subtracts a residue from a pixel group. Unlike the present claimed invention which copies a converted pixel group of a preceding image when detecting the pixel group is of inter type with no residue, Chen

subtracts a residue from the received pixel block when detecting the pixel group is of inter type.

Additionally, the process of the present claimed invention provides "a second step of converting of the decoded data" in claim 1. In contrast, Chen neither discloses nor suggests this feature. Chen describes switch 327 and subtractor 345, whose function is to perform inter coding and to calculate a residue (see col. 11, lines 10-14 and see also MPEG standard). Thus, Chen is fundamentally different than the present claimed invention, as the present claimed invention converts the decoded data and Chen describes inter-coding and calculating residue. Unlike the presents claimed invention which describes a copy of a group of pixels to convert decoded data, Chen describes activating Switch 327 for inter-coding through the subtractor 345.

Furthermore, as described above, Chen describes a filter to perform conversion and a subtractor to perform coding, thus failing to disclose **copying** a previously converted group of pixels. However, even if one were to suppose, in place of the view discussed above, that adder 345 actually performs a copy of a pixel-block, Chen would still not disclose the principles of the present claimed invention.

Specifically, the present claimed invention provides "a second step of converting of the **decoded data**" in claim 1. In contrast, Chen neither discloses nor suggests this feature. Under the second view noted above, Chen describes that un-decoded reference image data from the chroma MC(2) function is passed to the adder 345 which performs a copy of a pixel block. The output of this "copy" by adder 345 is a residue used for coding. The residue is a temporary signal, requiring supplementary data (reconstructed block) to represent an input signal (inter-coding mode). Thus, under this alternate view of the system

of Chen, Chen would once again be fundamentally different than the present claimed invention, as the present claimed invention discloses a copy **of a converted block of pixels** and Chen would describe a copy **of a non-converted block of pixels**. Additionally, as inter mode is typically without residue, the output signal of adder 345 described by Chen would typically be of a value of zero. Thus, the system of the present claimed invention would produce a converted signal corresponding to the input signal while the system of Chen would typically produce a residue output of zero. Therefore, Chen fails to disclose **copying** a group of pixels under the first view of the function of adder 345 and fail to disclose copying a group of **decoded pixels** under the second view of the function of adder 345.

Even further, Lim et al. discloses a first process for the conversion of B-type frames and a second process for the conversion of I and P type frames. In contrast, the present claimed invention discloses different processes for the conversion of the frames using inter coding (P and B-type frames) and for the conversion of I-type frames. Thus, Lim et al. are fundamentally different than the present claimed invention, as the present claimed invention discloses a separate conversion process for I-type frames and Lim et al. disclose a single conversion process for both I and P-type frames. Furthermore, Lim et al., similarly to Chen, is fundamentally different than the present claimed invention, as the present claimed invention performs a conversion by a copy of a converted pixel group of a preceding image when the decoding mode is of inter type and Lim et al. merely disclose the conversion of I and P-type frames.

In addition, it would not be obvious to combine the systems of Lim et al. and Chen. Lim et al. and Chen disclose separate decoding and conversion means. Chen discloses MPEG circuits for decoding data (IDCT 315, adder 330...) and a filter for converting data. Lim et al. disclose a circuit 61 for decoding data and circuit 84/93 for converting data.

There is no hint for combining the means of these two systems to implement the specific conversion process claimed in our invention.

Even if one were to try to combine the systems of Chen and Lim et al. the combined system would be confusing and would ultimately be discarded by one skilled in the art. Specifically, in combining the two systems one skilled in the art would combine the circuits displayed in Figure 9 of Lim et al. with circuits (adder 345 for conversion, reconstruction means 360, 365, 350 and 355 and filter 340) displayed in Figure 3 of Chen. Thus, the combined system would consist of a decoder (adder 345 of Chen), a converter (filter 340 of Chen) and a specific converter for the inter mode without residue (Lim). The specific converter is in fact a coder whose output is a compressed signal. Thus, one skilled in the art may opt to place a decoder after the specific decoder to obtain a decoded output. Thus, the final layout of the combined system would consist of a decoder followed by a converter/coder followed by another decoder. However, this layout would be ultimately discarded by one skilled in the art as it is inefficient and confusing.

Additionally, the reason for combining the systems of Chen and Lim et al. is to provide an improved visual quality at the decoding terminal. This is wholly unlike the advantage with which the present invention is concerned, as the present invention is concerned with optimizing the calculation time (page 5, lines 29-30).

Furthermore, even if one were to successfully combine the systems of Chen and Lim et al., the combined system, similarly to the individual systems of Chen and Lim et al., would not disclose the features of the present claimed invention. Specifically, the present claimed invention discloses "for a coded pixel group to be converted, if the decoding mode is of the "inter" type with no residue, the conversion is performed by a copy of a converted

pixel group of a preceding image linked by the motion vector associated with said coded pixel group". Chen is concerned with inter coding (see structure of an MPEG coder). Chen is not concerned with anything beyond the MPEG coding defined by coding circuits 345 to 370. Thus, there is no functional link between the coding circuits and the conversion circuit (the filter). Combining other systems that have a separate decoding step and conversion step would not suggest a combination of the two steps. Therefore, the combination of the systems of Chen and Lim et al. would not suggest the use of a specific decoding mode for performing the conversion, as claimed in the present claimed invention.

In addition, the present claimed invention provides "a second step of converting of the decoded data, wherein, for a coded pixel group to be converted, if the decoding mode is of the "inter" type with no residue, the conversion is performed by a **copy of a converted pixel group of a preceding image linked by the motion vector** associated with said coded pixel group" in claim 1. Kato, similarly to Chen and Lim, neither discloses nor suggests these features. Specifically, Kato describes that "in the case where picture coding type of the skipped macroblock is B picture...conditions where coded block signal is zero, **motion vector takes value stored in memory** of element for determination of reconstructed motion vector from difference, motion compensation mode is motion compensation mode of macroblock decoded immediately before" (Col. 14, lines 29-36) and describes a similar sequence for skipped macroblocks of the P type (Col. 14, lines 9-28). Thus, Kato (with Chen and Lim) is fundamentally different than the present claimed invention, as the present claimed invention performs **a copy of a converted pixel group of a preceding image** linked by the motion vector when the decoding mode is of "inter" type and Kato merely **assigns the motion vector a value stored in memory** when the decoding mode is of "inter" type. Unlike the present claimed invention which detects when there is no residue, Kato detects when there is no residue and no motion vector associated with the

macroblock. Therefore, Kato can in no way be concerned with copying a converted group of pixels form the preceding image **linked by the motion vector**. Additionally, unlike the present claimed invention which copies a converted **group of pixels**, Kato copies a **motion vector**. Furthermore, unlike the present claimed invention which copies a converted group of pixels **of a preceding image**, Kato copies a motion vector **stored in memory**.

Furthermore, the present claimed invention provides that "for a coded pixel group to be converted, if the decoding mode is of the "inter" type with no residue, the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group". As the individual systems of Chen, Lim et al. and Kato, as discussed above, are not concerned with the features of the present claimed invention, it is respectfully submitted that the combined system of Chen, Lim et al. and Kato would neither disclose nor suggest the features of the present claimed invention.

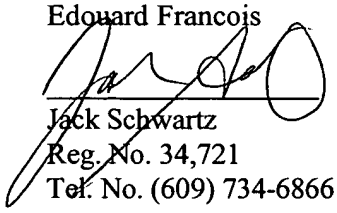
Dependant claim 4 is considered to be patentable based on their dependence on independent claim 1. Therefore, the arguments presented above with respect to claim 1 also applies to claim 4. Consequently, it is respectfully requested that the rejection of claim 4 under 35 USC 103(a) be withdrawn.

VIII CONCLUSION

Chen, when taken alone or in combination with Lim et al., neither discloses nor suggests that "if the decoding mode is of the "inter" type with no residue, the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group" as recited in claims 1 and 7 of the present claimed invention. Additionally, Chen, when taken alone or in combination with Lim et al., neither disclose nor suggest that "in the case where the complementary data pertaining to a pixel group and to a given resolution have zero value, this pixel group for the converted image of given resolution is obtained from a group of converted pixels of the image of lower resolution" as recited in claim 8 of the present claimed invention.

Accordingly it is respectfully submitted that the rejection of Claims 1-8 should be reversed.

Respectfully submitted,
Edouard Francois



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July 18, 2006

APPENDIX I - APPEALED CLAIMS

1. Process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups comprising a first step for decoding the coded data and a second step of converting of the decoded data, wherein, for a coded pixel group to be converted, if the decoding mode is of the "inter" type with no residue, the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group.

2. Process according to Claim 1, wherein, if the motion vector associated with the pixel group is null, the conversion is performed by recopy of the co-located pixel group and, if the motion vector is different from zero, the conversion is performed by motion compensation in a preceding converted image.

3. Process according to Claim 1, wherein the data are coded according to the MPEG standard, the pixel group is an image block and the coding mode is determined from the cbp (coded block pattern) code defining the apportionment of the coded blocks in a macroblock.

4. Process according to Claim 1, wherein the data are coded according to the MPEG standard, the pixel group is a macroblock and said coding mode is determined from the "skipped macroblock" or "uncoded" mode.

5. Process according to Claim 1, the format conversion being supplemented with a modification of the display employing a simple mathematical operation applicable at the decoded pixel group level, wherein the operation, adapted to the display domain, is applied to the copied converted pixel group.

6. Process according to Claim 5, wherein the simple operation is the addition of an offset.

7. Process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups comprising a first step for decoding

the coded data and a second step of converting of the decoded data, wherein, if for the decoding of a pixel group to be converted an error of transmission of the coded data brings about an error masking mode equivalent to a decoding of the inter type with no residue, the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group.

8. Process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups comprising a first step for decoding the coded data and a second step of converting of the decoded data, the coded data comprising complementary data allowing scalability, that is to say the obtaining of images of different resolutions, wherein, in the case where the complementary data pertaining to a pixel group and to a given resolution have zero value, this pixel group for the converted image of given resolution is obtained from a group of converted pixels of the image of lower resolution.

APPENDIX II - EVIDENCE

Applicant does not rely on any additional evidence other than the arguments submitted hereinabove.

APPENDIX III - RELATED PROCEEDINGS

Applicant respectfully submits that there are no proceedings related to this appeal in which any decisions were rendered.

APPENDIX IV - TABLE OF CASES

1. *In re Fine*, 5 USPQ 2d 1600, (Fed Cir. 1988)
2. ACS Hospital Systems Inc v. Montefiore Hospital, 221 USPQ 929,933 (Fed. Cir. 1984)
3. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (CCPA 1966)
4. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed.Cir. 1988), *cert. denied*, 488 U.S. 825 (1988)
5. *Ashland Oil Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 28, 293, 227 USPQ 657, 664 (Fed.Cir. 1985), *cert. denied,* 475 U.S. 1017 (1986)
6. *In re Oetiker,* 977 F2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992)

APPENDIX V - LIST OF REFERENCES

U.S. Patent / Publication . No.	Issued/ Publication Date	102(e) Date	Inventors
6,259,741	July 10, 2001		Chen
6,333,952	December 25, 2001		Lim et al.
5,701,164	December 23, 1997		Kato

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